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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,975	10/28/2003	Lang H. Nguyen	03089	4434

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Robert J. Follett, Esq.  
CABOT CORPORATION  
Law Department  
157 Concord Road  
Billerica, MA 01821

EXAMINER
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BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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12/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/694,975	<b>Applicant(s)</b> NGUYEN, LANG H.	
	<b>Examiner</b> MICHAEL M. BERNSHTEYN	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,10-12,18-22,24-35 and 37-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,10-12,18-22,24-35 and 37-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/09/2008</u>  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This Office Action follows a response filed on August 6, 2008. No claims have been amended, cancelled or added.
2. Applicant's arguments, see remarks, filed on August 6, 2008, with respect to claims 1, 3-6, 10-12, 18-22, 24-35 and 37-41 have been fully considered and are persuasive. The rejections of claims 22, 24-35 and 37-41 have been withdrawn.
3. Applicant's arguments with respect to claims 1, 3-6, 10-12, 18-22, 24-35 and 37-41 have been considered but are moot in view of the new ground(s) of rejection.
4. This is the second non-final rejection.
5. Claims 1, 3-6, 10-12, 18-22, 24-35 and 37-41 are pending.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 3-6, 10-12 and 18-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1, lines 2-5 recites "...at least one non-ionic surfactant, in an amount of between about 3% and 25% based on the total weight of the dispersant composition,

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which is insoluble in water and ii) at least one polymer comprising at least one salt of a carboxylic acid group, in an amount between about 5% and 20% by weight based on the total weight of the dispersant composition... ". These weight limitations contain new subject matter which is not described in the specification because the specification discloses that the amount of non-ionic surfactant is typically between about 5% and 20%, (not between about 3% and 25%), and the amount of polymer comprising at least one salt of a carboxylic acid group is generally between about 3% and 25% (not between about 5% and 20%) (the specification, page 5, [0019]).

Therefore the claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

### ***Claim Rejections - 35 USC § 103***

7. The text of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

8. Claims 1, 3-6, 10-12 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Martin et al. (U. S. Patent Application Publication 2003/0191231, now U. S. Patent 7,022,759).

Martin discloses aqueous ambient temperature crosslinkable and shelf stable polyester polymer compositions, which provide coatings having improved open and wet edge times as well as good tack-free times (page 1, [0001]).

With regard to the limitations of claim 1, Martin discloses that the crosslinkable polyester oligomer(s) preferably contains a sufficient concentration of bound hydrophilic water-dispersing groups capable of rendering the oligomer self water-dispersible, but the concentration of such groups is preferably not so great that the oligomer has an unacceptably high water solubility in order to not compromise the water sensitivity of the final coating. The type of hydrophilic groups capable of rendering the crosslinkable polyester oligomer(s) water-dispersible are well known in the art, and can be ionic water-dispersing groups or non-ionic water-dispersing groups. Preferred non-ionic water-dispersing groups are polyalkylene oxide groups, more preferably polyethylene oxide groups. A small segment of the polyethylene oxide group can be replaced by propylene oxide segment(s) and/or butylene oxide segment(s), however the polyethylene oxide group should still contain ethylene oxide as a major component (page 4, [0062]-[0063]). There are many examples of carboxylic acids (or their ester forming derivatives) which can be used in polyester oligomer(s) synthesis for the provision of the monomer(s) providing an acid component. Examples include, but are not limited to monofunctional acids such as (alkylated) benzoic acid and hexanoic acid; and C<sub>4</sub> to C<sub>20</sub> aliphatic, alicyclic and aromatic dicarboxylic acids (or higher functionality acids) or their ester-forming derivatives (such as anhydrides, acid chlorides, or lower alkyl esters) (page 6, [0073]). These compounds can be considered as the claimed component (ii).

With regard to the limitations of claim 1, Martin does not disclose the amount of component (ii).

It is noted that “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.). Furthermore, the amount of component (ii) is a result effective variable, and therefore, it is within the skill of those skilled in the art to find the optimum value of a result effective variable, as per *In re Boesch and Slaney* 205 USPQ 215 (CCPA 1980):

Discovery of optimum value of a result effective variable in known process is ordinarily within the skill in the art and would have been obvious.

With regard to the limitations of claims 1 and 3-6, Martin discloses that surfactants and or high shear can be utilized in order to assist in the dispersion of the polyester oligomer(s) in water (even if the oligomer(s) is self-dispersible). Suitable surfactants include but are not limited to conventional anionic, cationic and/or non-ionic. Non-ionic surfactants include polyglycol ether compounds and **polyethylene oxide** compounds. The amount used is preferably 0 to 15% by weight, which is mostly (from 3% to 15%) within the claimed range (page 7, [0085]). These compounds can be considered as the claimed component (i).

With regard to the limitations of claims 10-12, Martin discloses NeoCryl **BT-24 (acrylic emulsion polymer)** (page 15, [0197]), which is exemplified in the specification (Example 1, page 13).

With regard to the limitations of claim 18, Martin discloses that the crosslinkable polyester oligomer(s) may be completely water-soluble (which is less preferred) or only have partial solubility in water. The polyester oligomer(s) may be dispersed in water using techniques well known in the art. An aqueous dispersion of the polyester oligomer(s) may be readily prepared by adding water directly to the hot polyester oligomer(s) melt until the desired solids content/viscosity is reached. Alternatively the polyester oligomer(s) may be dispersed in water by adding an aqueous pre-dispersion (page 4, [0061], page 7, [0084]).

With regard to the limitations of claims 19 and 20, Martin discloses that the crosslinkable polyester oligomer(s) may crosslink at ambient temperature by a number of mechanisms including but not limited to autoxidation, Schiff base crosslinking and silane condensation. By Schiff base crosslinking is meant that crosslinking takes place by the reaction of a carbonyl functional group(s), where by a carbonyl functional group herein is mean an aldo or keto group and including an enolic carbonyl group such as is found in an acetoacetyl group, with a carbonyl-reactive amine and/or hydrazine (or blocked amine and/or blocked hydrazine) functional group (page 3, [0057]).

With regard to the limitations of claim 21, Martin discloses that if the anionic water-dispersing groups are neutralized, the base used to neutralize the groups is preferably ammonia, an amine or an inorganic base (page 5, [0065]).

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9. Claims 22, 24-35 and 37-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (U. S. Patent Application Publication 2003/0191231, now U. S. Patent 7,022,759) as applied to claims 1, 3-6, 10-12, and 18-21 above and further in view of Belmont (U. S. Patent 5,672,198).

The disclosure of Martin's reference resided in § 8 is incorporated herein by reference.

With regard to the limitations of claims 22, 24-35 and 37-41, Martin discloses that the aqueous coating composition may contain other conventional ingredients including pigments, dyes, emulsifiers, plasticizers, thickeners, and other additives (page 12, [0150]), but does not disclose the claimed limitations for the pigment and the pigment composition.

With regard to the limitations of claims 22, 24 and 37, Belmont discloses **aqueous ink compositions** which include a modified carbon product comprising a carbon having attached at least one organic group that is substituted with an ionic or an ionizable group. A **coating composition** is also described and comprises water, a binder, and a modified carbon product having at least one organic group attached to carbon wherein the organic group is substituted with an ionic or an ionizable group (abstract, col. 2, lines 44-47).

With regard to the limitations of claims 25 and 38, Belmont discloses that the ionic group may be an **anionic group** or a cationic group and the ionizable group may form an anion or a cation (col. 4, lines 7-10).



With regard to the limitations of claims 26 and 39, Belmont discloses that more preferably, the organic group is a phenyl or a naphthyl group and the acidic group is a sulfonic acid group, a sulfinic acid group, a phosphonic acid group, or a carboxylic acid group (col.

With regard to the limitations of claims 27 and 40, Belmont discloses that most preferably, the organic group is a substituted or unsubstituted **sulfophenyl group** or a salt thereof (col. 4, lines 36-37).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the pigment which is a modified carbon product comprising a carbon product having attached at least one organic group as taught by Belmont in Martin's aqueous polymeric composition because in contrast to conventional carbon pigments, the modified carbon products for use in the ink or coating of the present invention are not difficult to disperse in an aqueous vehicle. The modified carbon products do not necessarily require a conventional milling process, nor are dispersants necessarily needed to attain a usable ink or coating. Preferably, the modified carbon products only require low shear stirring or mixing to readily disperse the pigment in water (US'198, col. 3, lines 19-27), and thus to arrive at the subject matter of instant claims 22-27, 31 and 37-41.

With regard to the limitations of claims 28 and 29, Martin discloses aqueous coating composition comprising water (page 11, [0137]).

With regard to the limitations of claim 32, Martin discloses that the dispersed polymer(s) may for example be vinyl polymer, polyester, polyamide, polyepoxide, or a

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mixture thereof. The dispersed polymer(s) may also be a hybrid of two or more different polymer types such as urethane-acrylic polymers, epoxy-acrylic polymers and polyester-acrylic polymers (page 8, [0098]).

With regard to the limitations of claim 33, Martin discloses NeoCryl **BT-24 (acrylic emulsion polymer)** (page 15, [0197]), which is exemplified in the specification (Example 1, page 13).

With regard to the limitations of claims 34 and 35, Martin discloses that preferably the solids content of the aqueous coating composition when determining the equilibrium viscosity is in the range of from 20 to 60%, more preferably in the range of from 20 to 65%, most preferably in the range of from 20 to 70%, especially in the range of from 20 to 75%, which is within the claimed range (page 3, [0045]).

10. Claims 1, 3-6, 10-12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Mazanek et al. (U. S. Patent 5,266,622).

With regard to the limitations of claim 1, Mazanek discloses that aqueous dispersions of fillers and/or pigments contain a dispersant combination of the following composition: A) 40 to 95 by weight of a **water-soluble polymer**, and B) 0 to 60 by weight of a **non-ionic alkylene oxide** adduct having an average molecular weight of 200 to 100,000 (abstract).

Component B) is preferably present in up to 10 to 40, in particular 20 to 30% by weight, which is overlapping the claimed range (col. 2, lines 56-58).

With regard to the limitations of claim 1, Mazanek does not disclose the amount of component (ii).

It is noted that “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” ***In re Aller***, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%). Furthermore, the amount of component (ii) is a result effective variable, and therefore, it is within the skill of those skilled in the art to find the optimum value of a result effective variable, as per ***In re Boesch and Slaney*** 205 USPQ 215 (CCPA 1980):

Discovery of optimum value of a result effective variable in known process is ordinarily within the skill in the art and would have been obvious.

With regard to the limitations of claims 3-6, Mazanek discloses that possible non-ionic alkylene oxide adducts (Component B) are mono-, di- and polyfunctional species. For example, they may be reaction products of alkylene oxides with any compounds containing active hydrogen. The alkylene oxides can contain, for example, 2 to 40, preferably 2 or 3, C atoms. The compounds containing active hydrogen may be, for example, mono-, di- or polyfunctional, optionally substituted phenols, alcohols, thioalcohols or amines. Reaction products of alkylene oxides with  $\alpha,\omega$ -aminopolyethers are also suitable, for example those having an average molecular weight of 200 to 100,000, preferably from 400 to 60,000 (col. 3, lines 6-17).

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With regard to the limitations of claims 10-12, Mazanek discloses that possible water-soluble polymers (Component A) are, for example, any water-soluble homopolymers and copolymers which may also be optionally modified natural products (for example salts with monovalent cations). Homopolymers and copolymers of **methacrylic and/or acrylic acid** and their salts are preferred, in particular those having molecular weights in the range from 800 to 40,000, especially 1,000 to 20,000, in the form of the sodium, potassium or optionally substituted **ammonium salts** (col. 2, line 61 through col. 3, line 5).

With regard to the limitations of claim 18, Mazanek discloses that the dispersant combination selected by preliminary tests may be dissolved in **water** and the substances to be dispersed may then be added with stirring. The dispersant combination, water and the solids may also be mixed and ground together in a mill (col. 5, lines 12-16).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael M. Bernshteyn/  
Examiner, Art Unit 1796

/M. M. B./  
Examiner, Art Unit 1796